



Our Docket No.: 42P9249

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Hermerding)	Examiner: Yanchus III, Paul B.
Application No.: 09/752,575)	Art Group: 2116
Filed: December 29, 2000)	
For: A Mechanism for Managing Power Generated in a Computer System)	

APPEAL BRIEF
IN SUPPORT OF APPELLANT'S APPEAL
TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Sir:

Applicants (hereinafter "Appellants") hereby submit this Brief in support of its appeal from a final decision by the Examiner, mailed June 21, 2004, in the above-referenced Application. Appellants respectfully request consideration of this appeal by the Board of Patent Appeals and Interferences for allowance of the above-captioned patent application.

An oral hearing is not desired.

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I. REAL PARTY IN INTEREST

The invention is assigned to Intel Corporation of 2200 Mission College Boulevard, Santa Clara, California 95052.

II. RELATED APPEALS AND INTERFERENCES

To the best of Appellants' knowledge, there are no appeals or interferences related to the present appeal that will directly affect, be directly affected by, or have a bearing on the Board's decision.

III. STATUS OF THE CLAIMS

Claims 1-16 are currently pending in the above-referenced application. In the Final Office Action mailed June 21, 2004, claims 1-7 and 10-11 stand rejected under U.S.C. §102(b) as being anticipated by Durham et al. (U.S. Patent No. 6,000,036) ("Durham"). In addition, claims 8, 9, and 12-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Durham* in view of Applicants' Admitted Prior Art (AAPA). Claims 1-16 are being appealed.

IV. STATUS OF AMENDMENTS

Claims 1-16 are currently pending in the subject application. These claims were finally rejected in the Final Office Action mailed June 21, 2004. The Examiner confirmed the final rejection of these claims in an Advisory Action mailed August 9, 2004 (hereinafter “Advisory Action”).

In response to the Final Office Action mailed on June 21, 2004, rejecting claims 1-7 and 10-11 under 35 U.S.C. §102(b) and claims 8, 9, and 12-16 under 35 U.S.C. §103(a), Appellants filed a Response After Final pursuant to 37 C.F.R. § 1.116 on July 12, 2004. No amendments were presented. Subsequently, an Advisory Action maintaining all rejections in the Final Office Action was mailed on August 9, 2004. In response, Appellants filed a Notice of Appeal on September 20, 2004. A copy of all claims on appeal is attached hereto as an Appendix of Claims.

Appellants respectfully traverse each of these grounds of rejection.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

According to one embodiment, a method is described. (See Fig. 4.) The method includes operating a computer system at a first central processing unit (CPU), receiving a first signal generated by a thermal sensor within the first CPU, and resuming operation of the computer system at a second CPU. (Page 6, lines 18-23.) Further embodiments of this method include determining a least recently used (LRU) CPU in the computer system upon receiving the signal from the first CPU. (See e.g., Fig. 4; page 7, lines 13-17.) In some embodiments the second CPU is the LRU CPU. (Page 7, lines 13-19.)

In a further embodiment, a computer system is described. (See Fig. 3.) The computer system includes a first CPU. It also includes a second CPU. (See e.g., Fig. 3, blocks 105a-105d.) The operation of the computer system is transferred from the first CPU to the second CPU upon the first CPU reaching a predetermined power threshold. (page 6, lines 18-23.) Further embodiments of the computer system include transferring the operation of the computer system from the second CPU to a LRU CPU upon the second CPU reaching a predetermined power threshold. (Page 7, lines 13-19.) In some embodiments a third CPU is the LRU CPU.

In still a further embodiment, a cooling system is described. (See Fig. 3.) The cooling system includes a heat pipe (Fig. 3, block 320), a first CPU coupled to the heat pipe, and a second CPU coupled to the heat pipe (Fig. 3, blocks 105a-105d.). The first CPU is active until reaching a predetermined power threshold. The second CPU becomes active upon the first CPU reaching the predetermined power threshold. (Page 6, lines 18-23.)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-7, 10, and 11 stand rejected under 35 U.S.C. §102(b) as being anticipated by (U.S. Patent No. 6,000,036) (“*Durham*”).

Claims 8, 9, and 12-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Durham*, in view of Applicants’ Admitted Prior Art (AAPA).

VII. ARGUMENT

1. THE PENDING CLAIMS 1-7, 10 AND 11 WERE IMPROPERLY REJECTED UNDER 35 U.S.C. § 102(b) BECAUSE *DURHAM* DOES NOT DISCLOSE OR SUGGEST TRANSFERRING OPERATIONS BETWEEN MULTIPLE CENTRAL PROCESSING UNITS (CPU) AND TRANSFERRING OPERATIONS FROM A FIRST CPU TO A LEAST RECENTLY USED (LRU) CPU

Appellants respectfully submit that *Durham* fails to disclose or suggest the claimed invention for the reasons set forth below. In order to find anticipation under 35 U.S.C. §102, the prior art reference must teach each and every aspect of the claimed invention either explicitly or impliedly. MPEP §706.02(IV).

(A) Claims 1, 4, 5, and 7 were improperly rejected because *Durham* does not disclose or suggest transferring operations between multiple CPUs

Claims 1, 4, 5, and 7 recite an element that is not disclosed in *Durham*. For example, Appellants' claim 1 recites the following:

A method of managing power generated within a computer system, the method comprising:
operating the computer system at a first central processing unit (CPU);
receiving a first signal generated by a thermal sensor within the first CPU; and
resuming operation of the computer system at a second CPU.

Appellants' claim 5 recites:

A computer system comprising:
a first central processing unit (CPU); and
a second CPU, wherein the operation of the computer system is transferred from the first CPU to the second CPU upon the first CPU reaching a predetermined power threshold.

Durham discloses a circuit for distributing an instruction to one of a plurality of functional circuits each positioned within different areas of an integrated circuit. The

circuit includes a first functional circuit positioned within a first area of the integrated circuit, and a second functional circuit positioned within a second area of the integrated circuit. The circuit also includes a first circuit for measuring or estimating power dissipation within the first area of the integrated circuit and generating a first signal relating to the measured or estimated power dissipation within the first area. A second circuit is provided for measuring or estimating power dissipation within the second area of the integrated circuit and generating a second signal relating to the measured or estimated power dissipation within the second area. The first signal and the second signal are processed and the instruction is routed to the first functional circuit for performance of an operation when the power dissipation in the second area exceeds a predetermined amount or to the second functional circuit when the power dissipation in the first area exceeds a predetermined amount. See Durham at col. 2, ll. 14-31.

Appellants submit that *Durham* does not disclose or suggest transferring operations between multiple CPU units. However, the Examiner maintains that *Durham* discloses transferring operations between multiple CPU units. For instance, the Examiner asserts:

Durham teaches a processing circuit with two distinct neighborhoods or areas of functional units which are typically found in a microprocessor. These two neighborhoods perform substantially the same function [column 3, lines 20-55]. Since each neighborhood individually is able to perform functions of a microprocessor or CPU, each neighborhood can be interpreted to be a microprocessor or CPU. Therefore, Durham does suggest a processing circuit with a first CPU and a second CPU.

Final Office Action at page 4, Response to Arguments section.

Appellants disagree with Examiner's characterization of the *Durham* reference. *Durham* discloses operating in only one microprocessor instead of multiple

microprocessors. The neighborhoods or areas in *Durham* are disclosed as being within a single microprocessor or integrated circuit. For example, *Durham* explicitly states, “current microprocessor designs have encountered problems where localized heating has forced the idling of particular portions (or functional units) of *the microprocessor chip.*” Col. 1, lines 17-20 (emphasis added). *Durham* also clearly states that its “invention allows microprocessor designers to logically steer instructions or functions to different units within separate areas in response to the estimated or measured power dissipation within, or at, various areas of *the microprocessor.*” Col. 6, line 66—col. 7, line 3 (emphasis added). Furthermore, *Durham* asserts that the problem it is trying to solve is “decreasing localized heating problems associated with functional units within *a microprocessor.*” Col. 1, lines 61-62 (emphasis added).

Transferring operations between functional units within the same CPU is not equivalent to transferring operations between separate CPUs. The above statements from *Durham* make clear that while *Durham* discloses transferring operations between functional units, these functional units are within the same CPU. In these statements reference is made to only a single microprocessor and the heating problems within that single microprocessor. Furthermore, Appellants can find no mention in *Durham’s* stated intent to operate between functional units within a single microprocessor and the evident lack of any mention of transferring operations amongst multiple microprocessors, Appellants submit that there is no second CPU in *Durham* that operates when a first CPU reaches a predetermined threshold.

Appellants submit that *Durham* does not disclose or suggest transferring operations between multiple CPU units. Therefore, claims 1 and 5 are patentable over *Durham*.

For the foregoing reasons, Appellants submit that the Examiner has failed to search and find a printed publication or patent that discloses the claimed invention as set forth in MPEP § 706.02(a).

Claims 4 and 7 depend from claims 1 and 5, respectively. Given that dependent claims necessarily include the limitations of the claims from which they depend, Appellants submit that the invention as claimed in claims 4 and 7 is similarly patentable over *Durham*.

Thus, the Examiner erred in rejecting claims 1, 4, 5, and 7 under U.S.C. § 102(b).

(B) Claims 2, 3, 10, and 11 were improperly rejected because *Durham* does not disclose or suggest transferring operations from a first CPU to a least recently used (LRU) CPU

Claims 2, 3, 10, and 11 are not anticipated under 35 U.S.C. §102(b) for the same reasons as given above with respect to claims 1, 4, 5, and 7, and further due to the additional limitation of transferring operations from a first CPU to a least recently used (LRU) CPU.

Appellants' arguments made above with respect to claims 1, 4, 5, and 7 apply equally to claims 2, 3, 10, and 11 and are incorporated herein by reference. With respect to a LRU CPU, Appellants' claim 2 recites the following:

The method of claim 1 further comprising determining a least recently used (LRU) CPU in the computer system upon receiving the signal from the first CPU.

Appellants' claim 10 recites:

The computer system of claim 1 further comprising a third CPU, wherein the operation of the computer system is transferred from the second CPU to a least recently used (LRU) CPU upon the second CPU reaching a predetermined power threshold.

Appellants submit that nowhere in *Durham* is there disclosed transferring operations from a first CPU to a LRU CPU. Accordingly, claims 2 and 10 are patentable over *Durham*.

Claims 3 and 11 depend from claims 2 and 10, respectively. Given that dependent claims necessarily include the limitations of the claims from which they depend, Appellants submit that the invention as claimed in claims 3 and 11 are similarly patentable over *Durham*.

For the forgoing reasons, Appellants submit that the Examiner has failed to search and find a printed publication or patent that discloses the claimed invention as set forth in MPEP § 706.02(a).

Thus, the Examiner erred in rejecting claims 2, 3, 10, and 11 under 35 U.S.C. §102(b).

**2. THE PENDING CLAIMS WERE IMPROPERLY REJECTED
UNDER 35 U.S.C. § 103(a) BECAUSE ANY COMBINATION OF
DURHAM AND APPLICANT'S ADMITTED PRIOR ART (AAPA)
DO NOT DISCLOSE OR SUGGEST TRANSFERRING
OPERATIONS BETWEEN MULTIPLE CPU UNITS**

Appellants respectfully submit that *Durham* in view of AAPA fails to disclose or suggest the claimed invention for the reasons set forth below. As the Honorable Board is well aware, in order to establish a *prima facie* case of obviousness:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, *the prior art reference (or references when combined) must teach or suggest all the claim limitations.*” (Emphasis added). *In re Vaech*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Manual of Patent Examining Procedure (MPEP), 8th Edition, Revision 2, May 2004, §2143.

(A) Claims 8, 9, and 12-16 were improperly rejected because *Durham* in view of AAPA does not disclose or suggest transferring operations between multiple CPU units

Claims 8, 9, and 12-16 are not obvious in view of *Durham* and AAPA under 35 U.S.C. §103(a).

As discussed above, nowhere does *Durham* teach or suggest each and every element of the Appellants' independent claims. For example, *Durham* does not teach transferring operations between multiple CPU units.

With respect to claims 8 and 9, which depend from claim 5, the Examiner cites AAPA for teaching a cooling system comprising a heating pipe, heat exchanger, and a cooling fan. However, since *Durham* fails to disclose many of the elements required by the Appellants' independent claims, including claim 5, and since AAPA fails to disclose,

teach and/or suggest those elements missing from *Durham*, the combination of *Durham* and AAPA fails to teach or suggest each and every element of the Appellants' invention as embodied in the claims. Consequently, the Examiner has not established a prima facie case of obviousness, and the Examiner's rejection of claims 8 and 9 under 35 U.S.C. §103(a) as being obvious over the combination of *Durham* and AAPA should be reversed.

With respect to claims 12-16, the Examiner also cites AAPA for teaching a cooling system comprising a heating pipe, heat exchanger, and a cooling fan. Appellants' claim 12 recites:

A cooling system comprising:
a heat pipe; and
a first central processing unit (CPU) coupled to the
heat pipe; and
a second CPU coupled to the heat pipe, wherein the
first CPU is active until reaching a predetermined power
threshold and the second CPU becomes active upon the
first CPU reaching the predetermined power threshold.

Claim 12 recites elements similar to claim 5. As discussed above with respect to claim 5, nowhere does *Durham* teach or suggest each and every element of Appellants' independent claim. For example, Durham does not teach transferring operations between multiple CPU units. Therefore, since *Durham* fails to disclose many of the elements required by the Appellants' independent claims, including claim 12, and since AAPA fails to disclose, teach and/or suggest those elements missing from *Durham*, the combination of *Durham* and AAPA fails to teach or suggest each and every element of the Appellants' invention as embodied in the claims. Consequently, the Examiner has not established a prima facie case of obviousness, and the Examiner's rejection of claims 12 under 35 U.S.C. §103(a) as being obvious over the combination of *Durham* and AAPA should be reversed.

Claims 13-16 depend from claim 12. Given that dependent claims necessarily include the limitations of the claims from which they depend, Appellants submit that the invention as claimed in claims 13-16 is similarly patentable over *Durham* in view of AAPA.

VIII. CONCLUSION

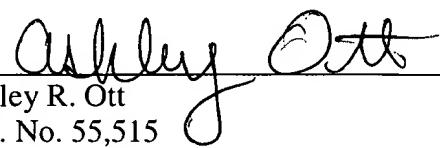
Careful review of the Examiner's rejections shows that the Examiner has failed to provide any reference, or combination of references of the prior art that shows all of the elements of each appealed claim. Therefore, Appellants respectfully submit that all appealed claims in this application are patentable and were improperly rejected by the Examiner during prosecution before the United States Patent and Trademark Office. Appellants respectfully request that the Board of Patent Appeals and Interferences overrule the Examiner and direct allowance of the rejected claims.

This brief is submitted with a check for \$330.00 to cover the appeal fee for one other than a small entity as specified in 37 C.F.R. § 1.17(c). Please charge any shortages and credit any overcharges to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: November 22, 2004



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IX. APPENDIX OF CLAIMS (37 C.F.R. § 41.37(c)(1)(viii))

The claims on appeal read as follows:

1. A method of managing power generated within a computer system, the method comprising:
 - operating the computer system at a first central processing unit (CPU);
 - receiving a first signal generated by a thermal sensor within the first CPU; and
 - resuming operation of the computer system at a second CPU.
2. The method of claim 1 further comprising determining a least recently used (LRU) CPU in the computer system upon receiving the signal from the first CPU.
3. The method of claim 2 wherein the second CPU is the LRU CPU.
4. The method of claim 2 further comprising:
 - receiving a second signal generated by a thermal sensor within the second CPU;
 - determining a CPU in the computer system; and
 - resuming operation of the computer system at a third CPU.
5. A computer system comprising:
 - a first central processing unit (CPU); and
 - a second CPU, wherein the operation of the computer system is transferred from the first CPU to the second CPU upon the first CPU reaching a predetermined power threshold.
6. The computer system of claim 5 wherein the first CPU and the second CPU each include a thermal sensor.

7. The computer system of claim 6 wherein the operation of the computer system is transferred from the first CPU to the second CPU upon the thermal sensor within the first CPU measuring the predetermined power threshold.
8. The computer system of claim 5 further comprising a cooling system.
9. The computer system of claim 8 wherein the cooling system comprises:
 - a heat pipe coupled to the first CPU and the second CPU;
 - a heat exchanger; and
 - a cooling fan.
10. The computer system of claim 1 further comprising a third CPU, wherein the operation of the computer system is transferred from the second CPU to a least recently used (LRU) CPU upon the second CPU reaching a predetermined power threshold.
11. The computer system of claim 10 wherein the third CPU is the LRU CPU.
12. A cooling system comprising:
 - a heat pipe; and
 - a first central processing unit (CPU) coupled to the heat pipe; and
 - a second CPU coupled to the heat pipe, wherein the first CPU is active until reaching a predetermined power threshold and the second CPU becomes active upon the first CPU reaching the predetermined power threshold.
13. The cooling system of claim 12 wherein the first CPU and the second CPU each include a thermal sensor.
14. The cooling system of claim 12 further comprising:

a third CPU, wherein a least recently used (LRU) CPU becomes active upon the first CPU reaching the predetermined power threshold.

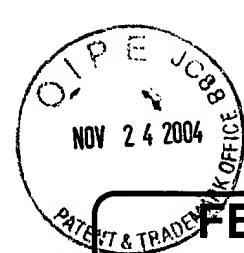
15. The cooling system of claim 14 wherein the third CPU is the LRU CPU.

16. The cooling system of claim 12 further comprising:

a block coupled between the first CPU and the heat pipe;

heat exchanger; and

a cooling fan.



**EE TRANSMITTAL
for FY 2004**

Effective 01/01/2004. Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 340.00)

Complete if Known	
Application Number	09/752,575
Filing Date	December 29, 2000
First Named Inventor	James Hermerding
Examiner Name	Yanchus III, Paul B.
Art Unit	2116
Attorney Docket No.	42390P9249

METHOD OF PAYMENT (*check all that apply*)

Check Credit card Money Order Other None
 Deposit Account

**Deposit
Account
Number** 02-2666

The Commissioner is authorized to: (check all that apply)

Charge fee(s) indicated below Credit any overpayments

Charge any additional fee(s) or underpayment of fees as required under 37 CFR §§ 1.16, 1.17, 1.18 and 1.20.

Charge fee(s) indicated below, except for the filing fee
to the above-identified deposit account

FEE CALCULATION

1. BASIC FILING FEE

<u>Large Entity</u>	<u>Small Entity</u>	<u>Fee Description</u>	<u>Fee Paid</u>
<u>Fee Code</u>	<u>Fee (\$)</u>	<u>Fee Code</u>	<u>Fee (\$)</u>
1001	790	2001	395 Utility filing fee
1002	350	2002	175 Design filing fee
1003	550	2003	275 Plant filing fee
1004	790	2004	395 Reissue filing fee
1005	160	2005	80 Provisional filing fee

2. EXTRA CLAIM FEES

Total Claims	<input type="text"/>	-	<input type="text"/> 20**	=	<input type="text"/> X	<input type="text"/>	=	<input type="text"/>
Independent Claims	<input type="text"/>	-	<input type="text"/> 3	=	<input type="text"/> X	<input type="text"/>	=	<input type="text"/>
Multiple Dependent	<input type="text"/>	-	<input type="text"/>	=	<input type="text"/>	<input type="text"/>	=	<input type="text"/>

Large Entity		Small Entity		
Fee Code	Fee (\$)	Fee Code	Fee (\$)	<u>Fee Description</u>
1202	18	2202	9	Claims in excess of 20
1201	88	2201	44	Independent claims in excess of 3
1203	300	2203	150	Multiple Dependent claim, if not paid
1204	88	2204	44	**Reissue independent claims over original patent
1205	18	2205	9	**Reissue claims in excess of 20 and over multiple dependent claims

***or number previously paid, if greater. For Reissues, see below.*

SUBMITTED BY

Complete (if applicable)

SUBMITTED BY		Complete (if applicable)		
Name (Print/Type)	Ashley R. Ott	Registration No. (Attorney/Agent)	55,515	Telephone (303) 740-1980
Signature				Date 11/22/04

Based on PTO/SB/17 (10-03) as modified by Blakely, Soloff, Taylor & Zafman (wlk) 02/10/2004.
SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450



TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

		Application No.	09/752,575
		Filing Date	December 29, 2000
		First Named Inventor	James Hermerding
		Art Unit	2116
		Examiner Name	Yanchus III, Paul B.
Total Number of Pages in This Submission	21	Attorney Docket Number	42390P9249

ENCLOSURES (check all that apply)

<input checked="" type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance Communication to Group
<input checked="" type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment / Response	<input type="checkbox"/> Petition	<input checked="" type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Terminal Disclaimer	<input checked="" type="checkbox"/> Other Enclosure(s): <i>(please identify below):</i>
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Request for Refund	<input type="checkbox"/> Return Postcard
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<input type="checkbox"/> Basic Filing Fee		
<input type="checkbox"/> Declaration/POA		
<input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Ashley R. Ott, Reg. No. 55,515 BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Signature	
Date	November 22, 2004

CERTIFICATE OF MAILING/TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Typed or printed name	Leah Schwenke		
Signature		Date	November 22, 2004

Based on PTO/SB/21 (04-04) as modified by Blakely, Sokoloff, Taylor & Zafman (wir) 06/04/2004.
SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450